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Conference Abstract

Open Science for Better FAIRness: A biodiversity virtual research environment point of view

Coline Royaux[‡], Elie Arnaud[§], Julien Sananikone[|], Marie Jossé[§], Mélanie Madelin[¶], Dominique Pelletier[#], Olivier Norvez[¤], Yvan Le Bras[§]

‡ Sorbonne University, Concarneau, France
§ MNHN, Concarneau, France, Metropolitan
| MNHN, Paris, France
¶ Ifremer, Concarneau, France
# Ifremer, Nantes, France
¤ FRB, Paris, France, Metropolitan

Corresponding author: Yvan Le Bras (yvan.le-bras@mnhn.fr)

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Abstract

"FAIR (Findable, Accessible, Interoperable, Reusable) principles" (Wilkinson et al. 2016) and "open science" are two complementary movements in biodiversity science. Although we need to transition to making scientific data and associated material more FAIR, this does not necessarily imply open data or open source algorithms. Here, based on the experience of the French Biodiversity Data Hub ("Pôle national de données de Biodiversité" - PNDB), which is an e-infrastructure for and by researchers, we want to showcase how focusing on openness can be a strategy to efficiently reach greater FAIRness. Following DataOne guidance, we can build a complete data/metadata ecosystem allowing us to structure heterogeneous environmental information systems. Using the Galaxy analysis platform and its related initiatives (Galaxy training network, European Erasmus+ Gallantries project, bioconda, bioContainer), we can thus illustrate how we can create transparent, peer-reviewed and accessible tools and workflows and collaborative training material. The Galaxy platform also facilitates use of high performance computing infrastructure through notably the European Open Science Cloud marketplace. Finally, through our experiences contributing to open source projects like EML (Ecological Metadata Language (Michener et al. 1997)) Assembly Line, EDI (Environmental Data

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Initiative, or PAMPA (Indicators of Marine *Protected Areas* performance for managing coastal ecosystems, resources and their uses), a French platform to help protected areas managers to standardize and analyse their data, we also show how building open source "doors" through the R Shiny programming language to these environments can be beneficial for all.

Keywords

open source, metadata, EML, Ecological Metadata Language, Metacat, Metacatui, Galaxy, R programming language, R Shiny, Conda, Bioconda, Biocontainer, PNDB

Presenting author

Coline Royaux & Yvan Le Bras

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